RURAL LAND USE

A SUBSTUDY OF THE REGIONAL OFFICIAL PLAN

CA30NHWQLO
74R74
HAMILTON PUBLIC LIBRARY
3 2022 21292315 1

REPORT NUMBER 1

INVENTORY

THE REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH
PLANNING AND DEVELOPMENT DEPARTMENT
October 1974

HAMILTON PUBLIC LIBRARY
REFERENCE COLLECTION

URBAN/MUNICIPAL

FOR USE IN LIBRARY ONLY

REGIONAL MUNICIPALITY OF HAMILTON-WENTWORTH

PLANNING & DEVELOPMENT DEPARTMENT

MEMORANDUM NO. 74

File No. R-14-G
September, 1974

TO THE CHAIRMAN AND MEMBERS OF THE
REGIONAL PLANNING & DEVELOPMENT COMMITTEE

Regional Official Plan
RURAL LAND USE SUBSTUDY - Inventory Section

CONTENT

I INTRODUCTION

II LOCATION OF RURAL AREA

III SURVEY OF EXISTING CONDITIONS

a) Physical Characteristics

b) Natural Resources

c) Climate

d) Existing Land Use

e) Municipal Services

f) Social Characteristics

g) Economic Characteristics

IV SUMMARY AND CONCLUSION

V APPENDIX MATERIAL

Maps, Tables and Settlement Areas
Bibliography

HAMILTON PUBLIC LIBRARY

SEP 2 9 1978

COPY 2

Digitized by the Internet Archive
in 2023 with funding from
Hamilton Public Library

https://archive.org/details/rurallandusesubs00unse

RURAL AREA DEVELOPMENT PATTERN

I INTRODUCTION

A variety of different development forms evolved in the Rural Area over the years, imposing changes on the general appearance and land uses. These changes resulted in a distant development pattern. Especially in the last years when the outward move from cities to the countryside reached noticeable proportions. This development occurred also in the Hamilton-Wentworth Planning Area and resulted in a distinct development pattern in the Rural Area.

It is the intent of this report to:

a) describe the existing conditions
b) introduce the overall appearance of the Rural Area to Committee Members.

II LOCATION OF RURAL AREA

The Rural Area of the Region can be generally described as the area not serviced by either the Hamilton or the Dundas Sewage Treatment Plants. It is conceivable that the Sanitary Sewer Service Area (served by the two S.T.P.) may be increased to allow for a possible expansion of the Sanitary Sewer Service Area. For the purpose of this report the area outside of the existing Sanitary Sewer Service Area is the Rural Area.

The total area of the Regional Municipality of Hamilton-Wentworth is 438 .48 sq. miles. The Rural Area comprises 220,324 Acres, or 344.25 sq. miles, which is 79% of the total area (see map No. 1 and table 1).

III SURVEY OF EXISTING CONDITIONS

a) Physical Characteristics

(i) Elevations:

The majority of the Rural Area of the Regional Municipality of Hamilton-Wentworth is located above the Niagara Escarpment. It is 1025 feet above sea level (a.s.l.) at its highest point in the northern section of the former municipality of East Flamborough. The greatest difference in relief occurs in the Dundas Valley.

Flamborough slopes gradually toward Lake Ontario except for the western section, which together with the southern Ancaster and Glanbrook area slope toward the Grand River. All other areas slope towards Lake Ontario.

Elevations vary throughout the Rural Area, especially in those areas that have glacial depositions like drumlins and moraines or have undulating or dissected plains which are the highest or lowest points in the rural area respectively, (see map No. 2).

(ii) Physiography:

Land forms of the Rural Area were shaped during the glacial periods. Within the area there are physical features such as shorelines from Lake Warren and Lake Iroquois (inter-glacial lakes) recessional moraines, till moraines, drumlins, glacio lacustrine and glacio fluvial depositions, etc. and the Niagara Escarpment, the most striking.

Most depositions in our area have been created by the oscillating processes of the last glaciations and are part of the depositions of the icesheet covering the area or were deposited by glacial meltwater, (streams within the icelobes or at the edge of the iselobes, or inter-glacial lakes created by blockage of ice), (see map No. 3).

(iii) Geology:

The present soil in the rural area originates from parent material which was transported and deposited before and during glaciation. The underlying bedrock formations and Bedrocks of the Niagara Escarpment are from the Ordovician, Silurian, Paleozolic geological formations. Glacial depositions are from the Pleistocene ere and our recent soils originate from Cenozoic, Quaternary and Recent times. The location of these bedrock and sand and gravel deposits are significant in their use by the extractive and construction industries (see map No. 4).

(iv) Soils:

Soil formations in the Rural Area originate from parent material which, through exposure to the atmosphere and weathering, became material which contains living matter and is supporting plant life. Soils have developed layers of zones or horizons through the influence of climate and living organisms. Agriculture is concerned with the upper A-horizon which is the part cut by a plow and harrow.

This information is valuable in order to distinguish soils and/or to evaluate these soils with respect to their capability to produce agricultural goods (see map No. 5).

b) Natural Resources

(i) Watersheds and Watercourses:

There are 10 watersheds in the Rural Area which are tributary to Bronte Creek, Grindstone Creek, Spencer Creek, Fairchild Creek, Big Creek, Welland River, Twenty Mile Creek, Red Hill Creek, Fourty Mile Creek and Stoney Creek. Surface run-off is collected in those watersheds and in two secondary watersheds, that of Chedoke Creek and a Saltfleet lowlands watershed. Only those Creeks which originate outside the urbanized area have a constant flow of water, most other function as collector of surface run-off (see map No. 6).

(ii) Watertable and Ground Water:

Water that occurs below the land surface in the zone of saturation is called ground water. The surface of the saturated zone is the watertable. Geological formations which hold, transmit or yield ground water in usable quantities are acquifers.

Numerous factors such as intensity and amount of precipitation, nature of the soil, vegetation cover, temperature etc., determine the amount of water which percolates to become ground water. The quantity and quality of ground water in the rural area is sufficient in the northern section of the Region. The other section (part of Ancaster and Glanbrook) is within the Haldimand clay plain) and is subject to limitation due to the clay depositions and mineralized water supply obtained from permeable bedrock formation.

Each location has to be explored with respect to availability, suitability and quantity of water. The depth and type of soil, the underlying bedrock formation and closeness of the watertable to the surface of the soil are determining factors.

Shallow overburden, rock outcrops, or marshes and swamps are located within the rural area. The Hayesland and Rockton limestone plains and the Mountsberg and Stoney Creek areas are noticeable. Other areas with insufficient soil percolation are evident throughout the Rural Area. The result of these conditions are insufficient water supply and sudden surface drainage creating eroded watercourses, excessive meandering of watercourse, silting of streams and flooding.

(iii) Marshy Areas and Swamps:

Almost all of the marshy and swamp areas are located in the northern and western part of the rural area. Some of the areas also have little overburden. Where run-off is blocked

by physical features such as drumlin formations, muck soils develop. These soils are located in the Beverly area, north of Millgrove, the Lake Medad area, north of Flamborough Centre and in the Summit Bog close to Copetown.

(iv) Woodlots:

The Rural Area has a great number of woodlots. Most of those treed areas are second growth or reforested areas. Areas with adverse physical features, especially swamp and muck areas which prevent the utilization of this land for crop farming, are covered by trees. Concentrations of such woodlots can be found close to the Mountsberg Reservoir, the Morainic depositions north of Carlisle, the Beverly Swamp area. The drumlin formations in West Flamborough and Beverly, the Dundas Valley, the Ridge of the Escarpment, the Regional Forests and most Stream Valleys and stream banks also contain woodlots. It is to be noted that there are a great number of small woodlots located within the more valuable soil area (soil classes No. 1 and 2. Most of those are located within areas which appear to have adverse physical features or are wet areas, (see map No. 7).

(v) Hazardous Areas:

Some physical features within the subject area may be recognized as areas for environmental protection. These vulnerable areas have inherent environmental hazards. They include: flood susceptibility, poor drainage, marshy and/or swampy conditions, erosion and/or unstable soils, rock outcrops or steep slopes. Lands which may be considered hazardous are the Niagara Escarpment, all swamp, marsh and bog areas, watercourses and stream valleys and stream banks. Areas with a slope of more than 14° (a ratio of more than 1-4) are included in this category. Environmental considerations: geology, soils, slopes, surface drainage, environmental characteristics, service capacity and general planning considerations, will be used to finally determine Hazard Lands.

c) Climate

(i) Introduction:

Climatic changes in a given area will depend on such geographic factors as latitude, altitude, relief, the distribution of land and water, etc. It frequently determines the type of soil and native vegetation in a given area. This in turn influences land utilization for agriculture.

Climate is probably the single most important element in determining potential land utilization. Other important determinents include, climate, terrain, economic minerals, soils, vegetation, etc., comprise the natural assets of a given region.

In general, climate can be best described on an annual basis, by temperature and its variation, precipitation, and by the frost free period. In addition to soil capability and other physical features of an area, climate is the most important factor in the production of agricultural goods.

(ii) Climatic Conditions:

The intent of the following description of climatic conditions is to present a simplified and generalized explanation of sub-climates in and beyond the Hamilton-Wentworth Planning Area. (see Map No. 8).

The Hamilton-Wentworth Planning Area appears to be within a cool temperature climate. The area can be further divided into three sections having sub-climates with distinct differences in temperature, precipitation and annual frost free period. Statistical dates for the year 1966 are used, since climatic conditions to not differ significantly over a long-term.

The South Slope Section includes the area of the Municipality of Flamborough. Wind direction is predominantly from the north-west. Offshore winds from Lake Ontario provide some moderate effects in spring and early summer especially in the East Flamborough area.

- Annual Temperatures

1966:		normal:
mean max.	53.5°F	54.6°F
mean min.	34.7°F	36.9°F
highest	94.0°F	106.0°F
lowest	-13.0°F	-27.0°F

- Annual Precipitation

1966:		normal:
rain	33.67"inch	28.13 inch
snow	68.00 inch	53.80 inch
Total precipitation	40.47	33.51 inch

- Frost free period

1966: 172 days normal: 165 days

The Lake Erie Section includes parts of the City of Hamilton, Town of Stoney Creek south of the Niagara Excarpment and all of the Town of Ancaster and the Township of Glanbrook. This section has a more moderate temperature. Prevailing winds are from the west and north-west.

- Annual Temperature

1966:		normal:
mean max.	55.1°F	57.5°F
Mean min.	38.9°F	38.7°F
highest	93.0°F	100.0°F
lowest	-12.0°F	-27.8°F

- Annual Precipitation

1966:		normal:
rain	29.16 inch	26.62 inch
snow	45.50 inch	48.10 inch
Total precipitation	33.71	31.43 inch

- Frost free period

1966: 159 days normal: 157 days

The Niagara Fruit Belt Section stretches from the Town of Dundas to the easterly limits of the Town of Stoney Creek with the Town of Grimsby and continues from there easterly. Prevailing winds contribute to favourable climatic conditions for fruit growing. Lake Ontario is a source of moisture in the summer and provides a moderating effect in winter.

- Annual Temperatures

1966: not available normal:

mean Max.	55.9°F
mean min.	40.4°F
highest	103.0°F
lowest	-14.0°F

- Annual Precipitation

1966:		normal:
rain	24.49 inch	27.55 inch
snow	53.90 inch	48.20 inch

Total precipitation 29.88 inch 32.37 inch

- Frost free period

1966: 150 days normal: not available

(iii) Conclusion:

Temperature variations are most noticeable in the South Slope and Lake Erie Section. The highest and lowest temperatures are also in those areas.

Precipitation is evenly distributed throughout the year for all sections with some moisture deficiency evident in the late summer month.

The frost free period is 150 to 160 days in the Lake Erie and 160 days in the Niagara Fruit Belt Sections the shortest frost free period of 140 to 150 days is in the Sough Slope Section.

All sections enjoy good growing potential as far as climate is concerned compared to other areas of Ontario. Due to the influence of Lake Ontario the Niagara Fruit Belt has an advantageous climate for the growing of tender fruits.

It can be recognized from the above-noted information that climate conditions are favourable for the production of agricultural goods.

d) Existing Land Use

There are 329 square miles within the Regional Municipality of Hamilton-Wentworth area which, for the purpose of this report, are designated as the Rural Area. It includes parts of Flamborough, Ancaster, Glanbrook as well as portions of Dundas and Stoney Creek outside the Serviceable area (see Map No. 1).

Agriculture is still the predominant land use including extensive and intensive uses. Extensive uses are general farming, diversified farming, mixed farming, dairy and cattle farming. Intensive uses are market gardening, hog and or poultry farming and other (mink, nutria, etc.) farming.

Certain areas with better soil conditions are suited for agricultural food production while other areas, hindered by physical characteristics like shallow soils, wetness, quality of soil and/or topography, are of little value for the production of food (see table No. 2 and map No. 5).

Farms appear to be larger in the Glanbrook-Ancaster area. This depends perhaps on several factors, one of which is the quality and capability of the soil. Most of the larger general and diversified farm uses are located within this sub-area. Farms appear to be smaller in the areas which have good soil conditions except for a few larger holdings, becoming larger in size in areas with heavy soils.

Farmland in the Rural Area is consistantly declining while the average size of farms is increasing. Agricultural uses are changing to other uses comparatively repidly because of the break-up, sale or rent of farmland. Other lands which may be recognized as pasture land actually lay fallow and are of no use in the food production. This occurs especially in areas close to the rural-urban fringes(see Table Nos. 3-6).

There is approximately 11,996 acres of open space in the Rural Area. Municipalities, Conservation Authorities, the Botanical Gardens and the Regional Municipality own 6,998 acres of that total. The remaining lands are owned by private clubs, associations and individuals.

The distribution of public open space is disproportionate, if compared with population distributions. The largest acreage of open space (a total of 4,366) is concentrated in Flamborough. Ancaster with 1,244 acres, Glanbrook with 1,047 acres and Stoney Creek with 134 acres of public open space have considerably less acreage. Private open space is also concentrated in Flamborough with 2,347 acres, Ancaster with 535 acres, Glanbrook with 851 acres and Stoney Creek with 464 acres have the remaining private open space (see table No. 7 and map No. 9).

Industrial uses in the subject area are predominantly pit and quarry operations. These operations are located in the vicinity of available limestone deposits. They include Cope & Sons in Stoney Creek, Canada Crushed Stone and Flamborough Quarries. Numerous sand and gravel pits are also located in those areas which have sufficient estractive mineral depositions, (predominantly in the Township of Flamborough). The largest acreage of industrial land use is in Flamborough with 1,371 acres, Stoney Creek has 325 acres, Ancaster 179 acres and Glanbrook 55 acres with a total of 1,930 acres. Industrial development includes food - meat packing, haulage, auto parts, oil storage companies, etc. (see map No. 9).

Commercial uses in the Rural Area serve mostly the surrounding rural area and are typical service commercial outlets or are highway oriented commercial uses such as motels, restaurants and service stations. Most of the properties used for commercial purposes are less than one acre in size except for a few restaurant and motel sites.

Residential Uses in the Rural area are frequently concentrated in Settlement Areas throughout the subject area. Larger settlements have acquired suburban characteristics and also provide services to the surrounding area. The former Village of Waterdown (located within the rural area), has complete municipal services and is urbanized while other settlements like Greensville, Carlisle, Freelton, Lynden, Millgrove, Mount Hope, and Binbrook may be regarded as suburban area. A brief summary of information for each of these settlements is included in the Appendix.

Smaller settlements and some residential concentrations and conglomerations may become the nucleus for future Hamlet areas. The result of permissive policies regarding land severances has in some areas created a lineal development of non-rural residences along the existing road network which is sporadic, isolated and in some cases landlocking good agricultural land. (see map No. 9).

Summary:

Urban and Suburban Development has steadily increased in the Rural Area in the last years. The increase in non-farm population is significant in all rural areas. Two subdivisions are presently being developed, in Freelton and Carlisle respectively and another subdivision is completed in Millgrove. It is perhaps significant to note that all are located in Flamborough. Another development of residential nature is the Beverly Hills Trailer Park (west of Strabane). Most urban development occurred as a result of land severances.

Land Use Changes resulted from amendments to the Official Plan and from uses permitted in the respective Zoning By-laws.

The decrease in number of Farms and Farm Population perhaps indicates a diminishing interest in agricultural activities in the Planning Area. Open Space uses have increased noticeably during the same period. In some areas they occupy lands which have a soil capability classification of No. 1 and 2 (Canada Land Inventory). Two larger areas of 25 acres and 40 acres and a few minor areas changed from agricultural uses to industrial uses. However the most extensive changes occurred from agricultural uses to residential uses, which in the last five years changed approximately 540 acres (based on the assumption that 1,080 non-rural residential lots would require approximately 0.5 acres - 20,000 sq. ft. each).

Land Use Relationships established by land use changes during the last years have not created significant incompatibilities. However, the total effect of non-rural land use changes, if permitted to continue at its present rate in the Rural Area, may create incompatabilities on a municipal basis. The adverse effect of indiscriminate changes may result in land use patterns - like dispersed, lineal and strip development - which could effect the economic and financial well being of the municipality. Urban and suburban development, if

not guided appropriately, may change the predominant rural character of some municipalities. The new country resident may also have a different outlook and value judgement regarding land use relationships.

The question of urban versus rural development is not one of "right" or "wrong" the point is that consequences of development must be realized and development be guided.

e) Municipal Services

(i) Public Utilities:

A municipal water supply is available in some areas of the Township of Flamborough. Waterdown is served with a water supply of 500,000 g.p.d. from the Town of Burlington Water Supply System and has additional capacity of 90,000 g.p.d. from well pumping stations. Subdivisions in Carlisle and Freelton are provided by a communal water supply.
Private water supply is also privided in
Flamborough - Cedar Knoll and Beverly Hill Trailer Park
Stoney Creek - Mc Collum W. W. and Morris W. W.

Some parts in the Town of Stoney Creek, below the Escarpment in the Winona area receive their water supply from the Town of Grimsby. All other development in the Rural Area rely on individual wells for their water supply.

Hydro electric power services are available throughout the entire Rural Area.

Telephone services can be provided for the entire Rural Area.

Natural Gas connections can be made available on request in those areas which are close to the existing gas supply network.

(ii) Fire & Police Protection:

In parts of Ancaster, Stoney Creek and Flamborough, fire protection is provided by the fire departments of the area municipalities.

Police protection is provided by the Regional Police Force and in Glanbrook and Flamborough by the Ontario Provincial Police.

(iii) Sanitary Sewer Services & Waste Disposal:

Only the former Village of Waterdown has a Sanitary Treatment Plant and Sanitary Sewer Services.
Glendale Survey in Stoney Creek is served by a lagoon system
All other areas are without sewer services.

Waste Disposal is not collected in the Rural Area. The existing Waste Disposal System is presently under study and a number of former municipal waste disposal sites will be phased out by the end of 1974.

(iv) Roads in the Rural Area:

Expressways - Highway No. 403 and Q.E.W.
Highways - Nos. 2, 5, 6, 8, 20, 53, 97, 99
Regional Roads and Municipal Roads - There is at the present no regional master road plan which would assign functions to the road network. Road development standards regarding minimum right-of-way, set-backs, daylight corners, grade separations, bridges, widewalks, streetscape, etc., are the subject of current studies.

(v) Transportation:

Roads - The rural area's present road network was determined by the grid system of the original land survey. It was established primarily to serve the basic transportation needs of the rural population within the municipalities. Some connections are provided to the urban area and other important employment centres.

In some cases the original function of some roads changed dramatically, particularly on those roads where a high peak hour travel can be observed. Provincial highways are major road facilities. Regional and municipal roads together with other local roads provide good accessibility to all rural areas at the present time.

Railways - The Toronto-Hamilton-Buffalo Railroad, the Canadian National Railroad and the Canadian Pacific Railroad provide important rail linkages to other areas outside the Rural Area and provide some limited services within the Rural Area.

Airport - The Hamilton Municipal Airport located in Glanbrook provides national as well as international passenger services at the present time.

Harbour - Hamilton Harbour facilities handle cargo from national as well as international ports. There are also some limited facilities available for recreational purposes.

f) Social Characteristics

(i) Population:

The existing population of 40,159 persons in the Rural Area includes population from both the urban and rural portions.

Population is concentrated in some of the Settlement Areas, reaching urban densities in the Village of Waterdown and sub-urban densities in other Village Areas (see Map no. 9). Certain areas in Flamborough appear to have the highest rural densities while in other areas toward the easterly section of the Rural Area densities are lower.

The increase in population indicates an approximate growth ratio of 0.5% per annum over the last 5 years. This figure however, is based on population increases for all municipalities except Hamilton and that part of Beverly now in the municipality of North Dumfries.

(ii) Housing:

Dwelling units in the Rural Area are predominantly single family units. The Village of Waterdown now has approximately 305 multiple dwelling units. Throughout the Rural Area there are also some semi-detached units, duplexes and two and three family units; most of the latter are conversions from larger structures. The total number dwelling units in the Rural Area is difficult to ascertain since complete records are not available. Until such time as accurate figures will be available it is estimated that the housing stock, shown on Table no.8 & 9 exists in the Rural Area.

Most of the existing housing stock was built during the post-war era. It consists primarily of brick and brick-veneer construction. Some older frame and/or stone structures also exist. Visual inspections on a random basis indicate that most of the housing stock is in good condition. However, it is to be noted that some structures were erected in areas which would not meet present requirements for residential use; this has resulted in mantenance and sanitary system difficulties. Most older houses are in surprisingly good condition and are usually well maintained. Housing which appear to be in poorer condition are usually those which were formelry part of a larger parcel of land or a viable farm.

The medium value of owner-occupied dwellings is available for the year 1971 (Statistics Canada) but includes all dwellings in the respective municipalities. The values are shown in the following table in Canadian currency.

Stoney Creek	
Saltfleet	24,511
Stoney Creek	27,878
Glanbrook	
Binbrook	27,169
Glanford	25,585

Ancaster	29,509
Flamborough	
Beverly	(not available at present time)
East Flamborough	29,091
West Flamborough	28,137
Waterdown	24,457
Dundas	27,366

(iii) Social Services:

Welfare - The Regional Social Services Department is responsible for all regional welfare services. In the municipalities there are a number of private organizations concerned with assisting those who need help. The Hamilton and District Social & Research Council is the most important of those organizations. These Community facilities and Social Services, however, are the subject of a separate sub-study.

Health - Within the Regional Municipality there are a number of hospitals, nursing homes and convalescence homes all located in the urban areas. General health conditions associated with the public interest are the responsibility of the Hamilton-Wentworth Health Unit. Ambulance Services are provided on a municipal basis.

Religious Services - The rural area is well serviced by a number of places of worship, including churches and religious halls. Temples and synagogues are located in the urban area.

Education - The rural area is serviced through the Wentworth County Board of Education by 34 Public Schools and 1 High School. Other schools of the Board are located within the urban area but provide services (primarily secondary education) for the rural area school population. One Separate School is also located in the Rural Area. Mohawk College and McMaster University located in the urban area provide facilities for higher education. Within the urban area there are also a number of Technical and Trade Schools.

g) Economic Characteristics

(i) Employment:

In the Rural area there are approximately 94 industrial enterprises which provide employment opportunities. Most are employed by the basic extractive industries. Other important industrial employers are a foundary, meat packing plants, trucking operations and a large number of service industrial operations. Commercial outlets in the Rural Area are predominantly highway oriented retail and service commercial outlets.

There are a few wholesale outlets which also provide employment opportunities. Agriculture provides employment only on limited and seasonal basis.

Except for basic industry, public service is the largest employer. However, most of the labour force within the Rural Area is employed in the urban area of Hamilton and outside the Region. Information related to the labour market is available only for the former municipalities and it is not possible to provide a detailed analysis at this time. But, it can be stated that employment in the Rural Area includes a large number of major occupational groups for both sexes and that unemployment has a ratio below the provincial and urban area levels.

(ii) Income:

Information on household income data in 1971 was collected on a sample basis by Statistics Canada. The data for all municipalities, except Beverly which is not available at this time is as follows:

Household Income (1971 Census of Canada - Cat. 95-739)

	Average total income per household	Medium total income per household	Average total income of household head	Average Employment income of household head
Ancaster	13,053	11,942	10,632	10,464
Dundas	11,683	10,796	9,217	9,438
West Flamborough	11,174	10,663	8,761	8,908
Binbrook	11,051	10,125	8,676	8,459
Glanford	10,931	10,312	8,351	8,111
Stoney Creek	10,806	10,164	8,484	8,591
Saltfleet	10,747	10,227	8,317	8,221
East Flamborough	10,939	10,146	8,487	8,560
Waterdown	9,611	8,827	7,653	7,346

Income per capita and disposable income per capita indicate current spending habits. When projected they also provide a picture of theoretical future needs. For instance, they can be utilized to establish housing, type of commercial outlets, etc.; these projections, however, will be determined by additional studies.

(iii) Municipal:

At this stage of our studies we wish to note that an economic review and analysis for the Regional Official Plan will include information regarding
- assessment, mill rates, tax rates and basis
- Current income and expenditures
- Debenture debt
- Capital budget
- Grant structure

which will be discussed in the Economic Sub-study.

IV SUMMARY AND CONCLUSIONS

Changes in the rural development pattern were reflected in changes in agricultural use of lands. These developments may in the long run result in increased demands for fire-police protection, roads, public transportation, schools, social and recreational facilities and services, etc. The influx of people not associated with the production of agricultural goods may even change basic rural outlook and value judgements, since most new residents in the rural area were urban oriented previously.

This report indicates that

a) physical characteristics of specific areas pose difficulties for rural as well as non-rural development (see map Nos. 2-7).

b) selected areas have the best soil classification (see map No. 5)

c) valuable mineral resources are located in the rural area (see map No. 4)

d) certain areas are urbanized and/or have a concentration of non-rural land uses (see map No. 9).

Information contained in this report indicates the following changes in the land use pattern:

a) decrease in farmland

b) decrease in farm population

c) increase in non-rural oriented population

d) increase in non-rural residential land use

e) steady annual increase in the number of lots for non-rural residential purposes

f) increase in areas used for open space purposes

g) a potential demand for urban services by the people or by public agencies.

The primary function of the Rural area, to provide for a production of agricultural goods, is still ensured. However, as more lands are being excluded from the production of primary agricultural goods by other uses, an imbalance will eventually develop.

The secondary function of the Rural Area - to provide sufficient open space - for the regional population appears to be strongly evident. However, it is apparent that some areas with the best soil classification are now utilized for open space, i.e. without any agricultural production.

The tertiary function of the Rural Area is to provide for urban expansion and general development. This function is frequently the subject of criticism and/or differences of opinion between individuals, private and public agencies and governmental authorities. In the last decade a number of noticeable changes occurred in the Rural Area which were predominantly caused by this tertiary function. These have resulted in population increases, expansion of industrial and commercial establishments and an increase of municipal service costs in the rural area.

Contrary to the general assumption that a migratory tendancy exists which draws people to the urban areas, it can be observed that on a regional basis a large number of persons chose the Rural Area as their place of residence or of business. The reason for their choice may be the lack of accommodation in the urban area, or perhaps aesthetical, environmental or economic considerations.

This report revealed several basic development issues of major concern:

1. the demand for urban and open space development, and
2. the noticeable break-up and decrease of farmland.

Succeeding reports in connection with the Rural Land Use Sub-study will deal with

- an interpretative analysis of the physical inventory of this report

- a land use designation for agriculture to show spatial relationships and compatabilities between agricultural uses, and

- policies for agricultural land use and such urban uses which may be surrounded by or are included in the agricultural area.

RURAL AREA - SUGGESTED GOALS, OBJECTIVES AND ISSUES

Goals

1. Protection, preservation and utilization of natural resources in the best interest of the people.

2. Maximize agricultural use of valuable high quality lands

3. Minimize the urban use of agricultural lands with a high capability for food production

Objectives

1. Preservation of productive agricultural land within soil capability classes I - III. (Canada land Inventory)

2. Preservation of sufficient lands required for continued agricultural use on a viable economic base

3. Development of compatible rural land use

4. Prevention of the disruption or dissection of productive agricultural lands by highways and/or utility corridors

5. Prevention of urban sprawl

6. Guidance of location, sequence and size of settlement development

7. Protection and preservation of areas affected by adverse topography

8. Preservation of existing forests, woodlots, natural resources and wildlife

Issues

1. Agriculture:

   - Break-up and decrease of farmland
   - Continued urbanization of agricultural land
   - Limited availability of lands for food production (Soil capability classes 1-3, Canada Land Inventory)

2. Open Space:

   - Conflict between preservation of agricultural land and open space uses
   - Possible acquisition of environmentally sensitive areas for public open space purposes
   - Utilization of abandoned pits and quarries - through rehabilitation - for open space purposes
   - Conflict between preservation of forests, woodlots, wildlife and agricultural land uses

3. Urban:

- Demand for urban and urban related development
- No growth philosophy and forces in urban areas
- Selection of rural settlement areas in the agricultural area
- Selection of lands with little capability for food production for other than agricultural uses
- Supply of rural residential lots

4. Mineral Resources:

- Recognition of mineral resources as a regional resource - a public resource - and that it should be made available for use
- Conflict between preservation of mineral resource areas, agricultural and/or other land uses
- The location and regulation of pit and quarry operations
- Limited availability of mineral resources (gravel, sand & limestone)

APPENDIX MATERIAL

Maps

No. 1 Urban Area

No. 2 Elevations

No. 3 Physiography

No. 4 Surficial Geology

No. 5 Soils

No. 6 Watershed and Watercourses

No. 7 Woodlots

No. 8 Climatic Regions

No. 9 Generalized existing land uses

Tables

No. 1 Urban and Rural Area of the Region

No. 2 Acreage distribution re: Canada Land Inventory

No. 3 Acreage, Production and Farm Value by Crop and Livestock and Poultry - Hamilton-Wentworth

No. 4 Population and Farmland - Hamilton-Wentworth

No. 5 Population and Farmland - Ontario.

No. 6 Farmland, Number of Farms and Numbers of Livestock on Farms - Ontario

No. 7 Spatial relationships and percentages of Open Space

Settlement Areas

Waterdown
Greensville
Carlisle
Freelton
Lynden
Millgrove
Mount Hope
Binbrook

TABLE NO. 1

Acreage Calculations for the Urban and Rural Portions of the Region

Municipality	Urban	Rural	Total	
City of Hamilton	34,807 ac.	-	34,807 ac.	- 54.38sq.mi.
Town of Ancaster	5,440 ac.	38,558 ac.	43,998 ac.	- 68.75sq.mi.
Town of Dundas	6,109 ac.	480 ac.	6,589 ac.	- 10.30sq.mi.
Town of Stoney Creek	13,171 ac.	12,270 ac.	25,441 ac.	- 39.75sq.mi.
Township of Flamborough	-	119,562 ac.	119,562 ac.	-186.82sq.mi.
Township of Glanbrook	832 ac.	49,454 ac.	50,286 ac.	- 78.57sq.mi.
Total	60,359 ac.	220,324 ac.	280,683 ac.	-438.57sq.mi.
	94.32sq.mi.	344,25sq.mi.	438.57sq.mi.	

TABLE NO. 2

Acreages - Distribution of Soil Capability Classification re: Canada Land Inventory

Municipality	C L A S S (I N A C R E S)								Total
	1	2	3	4	5	6	7	0	
Ancaster	22,700	8,565	5,666	-	-	-	1,627	-	38,558
Dundas	230	-	-	-	-	-	250	-	480
Stoney Creek	3,369	4,388	2,937	866	-	-	710	-	12,270
Flamborough	34,596	40,049	14,531	4,025	1,438	14,179	642	10,102	119,562
Glanbrook	39,044	10,410	-	-	-	-	-	-	49,454
Total	99,939	63,412	23,134	4,891	1,438	14,179	3,229	10,102	220,324
	45.4%	28.8%	10.5%	2.2%	0.6%	6.4%	1.5%	4.6%	100%

Table No. 3 Acreage, Production and Farm Value By Crop, In Wentworth County, 1971

Crop	Acreage	Yield/Ac.	Production	per bu.	total	per ac.
				$		$
Winter Wheat	5,674	40.2	228,100	1.65	376,000	66.27
Oats	12,863	58.2	752,500	.67	504,000	39.18
Barley	10,081	53.7	541,300	.97	525,000	52.08
Mixed Grains	9,313	59.9	557,800	.89	496,442	53.30
Soy Beans	416	28.0	12,447	2.95	37,719	79.65
Shelled Corn	17,017	80.3	1,366,500	1.17	1,601,751	94.13
Potatoes	2,467	205	501,700	2.18	1,093,300	443.17
		←-----(75lb. bags)-----→				
Fodder Corn	7,774	13.1 tons	101,900 tons	6.61 tons	673,559	86.64
Hay	31,869	2.93tons	93,400 tons	18.41	1,719,000	54.00

Livestock and Poultry:
Number and Farm Value in Wentworth County, 1971

Livestock	No.	Value per Head $	Value $
Cattle (Total)	30,305	222.19	6,711,200
- Beef*	15,326	164	2,507,000
- Dairy	14,879	283	4,204,200
Horses and Ponies	1,327	192	263,800
Pigs	48,886	27.60	1,349,100
Sheep & Lambs	2,302	28.02	64,500
Total Livestock	82,720	101.	8,388,600
Poultry			
Hens & Chickens	1,607,626	.98	1,584,000
Turkeys	49,718	5.50	273,400
Geese & Ducks	3,534	3.56	12,600
Total Poultry	1,660,879	1.13	1,870,000
Total Livestock & Poultry	1,743,599		$10,258,600

* includes bulls (one year and over) calves (under one year) and streers (one year and over)

Table 4 - Population and Farmland - County of Wentworth

	1941	1961	1971
Population			
Total population	206,721	358,837	392,732
increase	-	152,116	33,895
increase by percentage	-	42.4%	8.9%
Population on Census Farm	13,224	8,762	7,778
decrease	-	4,462	984
decrease by percentage	-	33.7%	9.2%
Farm Operators	3,265	2,367	1,863
decrease	-	898	504
decrease by percentage	-	27.5%	21.2%
Farmland			
Total acreage	247,575	193,639	171,070
decrease	-	53,936	22,567
decrease by percentage	-	21.8%	11.7%
Size Farm (average)			
Acreage	58.5	81.8	91.8
change	-	23.3	10.0
percentage	-	39.8	12.2
Improved land	191,111	156,385	139,530
decrease	-	34,726	16,850
decrease by percentage	-	-18.2	-10.8
as percent of total acreage*	72.7	63.6	56.8
Woodland and others	56,464	37,254	31,540
decrease	-	19.2%	15.3%
Acreage owned	209,509	165,561	125,547
rented	38,066	28,078	45,523
Farm Receipts ($000)			
Total	6,800	15,304	28,017
Receipts per farm	2,083	6,466	15,039
Value per farm	8,607	36,740	87,793
Land & Building	6,572	28,482	73,311
Machinery & Equipment	1,024	4,921	8,859
Livestock	1,011	3,337	5,623
Investments ($000)			
Total	28,093	86,963	163,557
Value of land	21,459	67,416	136,578
Value of machinery & equipment	3,343	11,649	16,504
Value of Livestock	3,301	7,898	10,475

Table 5 - Population and Farmland - Ontario

	1941	1961	1971
Total Population	3,800,000	6,200,000	7,700,000
Population increase	-	2,400,000	1,800,000
increase by percentage	-	38.2	19.5
Farm Land			
Total Acreage (mill)	22.4	18.5	16.0
decrease	-	3.9	2.5
decrease by percentage	-	17.5	15.6
Improved Farmland per Capita	3.5ac.	1.9ac.	1.4ac

Number of Farms and Trends in Farm Size, by Census Years, 1941 - 1971

	Farms		Total Farmland		Aveg. Size of Farms	
	Number	Percent Change	Acreage	Percent Change	Acres	Percent Change
1971	94,722	-32.0	15,963,056	-14.1	169	+10.5
1961	121,333	-22.0	18,578,507	-19.1	153	+21.4
1941	178,204	-	22,387,981	-	126	-

Source: Census of Canada

Trends in Occupied Farmland and Acres of Improved Land as a Percentage of the Total Land Area, Ontario, 1941-1971

		Occupied Farmland		Improved Land		
	Total Land Acres	Acres	As % of total Land Area	Acres	% Change	As % of total Land Area
1971	226,702,720	15,963,056	7.0	10,864,601	-9.8	4.8
1961	226,702,720	18,578,507	8.2	12,032,924	-10.0	5.3
1941	226,702,720	22,387,981	9.8	13,363,361	-	5.9

Source: Agricultural Census of Canada

Table 6 - Farmland, Number of Farms, and Numbers of Livestock on Farms in Ontario and the Hamilton-Wentworth Planning Area 1971

	Ontario	H.W.P.A.	H.W.P.A. as a percent of Ontario
Number of farms	94,722	1,863	1.9
Occupied farmland, acres '000	15,963	171	1.6
Improved land, acres, '000	10,865	139	1.3
Total acres per farm, no.	169	92	
Dairy cows, no. '000	755	14	1.8
Beef cows, no. '000	435	14	3.2
Steers, 1 year and over, no. '000	639	3	0.01
Swine, under 6 mths. no. '000	1,931	41	2.1
Hens & pullets for laying, no.'000	10,902	265	2.4
Selected crop acreages			
Winter Wheat	340,953	5,674	1.7
All oats a/	650,430	12,863	1.9
Barley	385,651	10,081	2.6
Mited Grains	928,364	9,313	1.0
Potatoes	40,055	2,467	6.2

a/ Does not include buckwheat and spring wheat

Table No. 7 Spatial relationships and percentages of Open Space

	Acreages					Percentages of		
	Municipal	Regional	Public Open Space	Private	Total Open Space	Public	Private	Total
Flamborough	179.65	4186.83	4366.48	2347.25	6713.73	62.4	55.9	60.0
Ancaster	10.82	1233.27	1244.09	535.88	1779.97	17.7	12.7	15.9
Glanbrook	20.72	1026.32	1047.04	851.06	1898.06	14.9	20.3	17.0
Stoney Creek	51.10	83.00	134.10	464.48	598.58	2.0	11.1	5.3
Dundas	-	206.15	206.15	-	206.15	3.0	—	1.8
Rural Area	262.29	6529.42	6997.86	4198.67	11196.53	100	100	100

TABLE NO. 8

DWELLING UNITS AND POPULATION DATA

Municipalities	1971	1972			1973		
	D.U.	S.F.	Mult.	Total # of D.U.	S.F.	Mult.	Total # of D.U.
East Flamborough	1560	1691	2	1693	1765	3	1768
Waterdown	625	556	244	800	559	254	813
West Flamborough	2235	2328	-	2328	2370	-	2370
Beverly	1494	1557	1	1558	1634	1	1635
Dundas	4925	4557	707	5264	4590	1067	5657
Ancaster	4000	4073	6	4079	4108	6	4114
Glanford	1535	1592	-	1592	1614	-	1614
Binbrook	980	1146	1	1147	1195	1	1196
Stoney Creek	2700	1626	1232	2858	1635	1275	2910
Saltfleet	4865	5163	118	5281	5442	298	5740

TABLE NO. 9

EXISTING NO. OF DWELLING UNITS IN THE RURAL AREA

Regional Municipalities	Exist. # of D.U.	Exist. popul-ation	Exist. pers/ farm
Flamborough	6288	21870	3.5
Dundas	5989	18640	3.2
Ancaster	4090	14632	3.6
Glanbrook	2810	9980	3.6
Stoney Creek	8650	28360	3.3
Rural Area			
Flamborough	6288	21870	3.5
Dundas	55	176	3.2
Ancaster	918	3305	3.6
Glanbrook	2654	9554	3.6
Stoney Creek	1592	5254	3.3
Total	11057	40159	3.5

WATERDOWN - TOWNSHIP OF FLAMBOROUGH

1. Location:

The Village is located on both sides of Highway No. 5 in Lots 6 & 7, Concession III, Township of East Flamborough. The Village was an incorporated municipality prior to the establishment of the Township of Flamborough.

2. Official Plan:

The Official Plan of the Hamilton-Wentworth Planning Area (East Flamborough-Waterdown Section) designated Waterdown as a Settlement Area including a Regional and a neighbourhood Centre.

3. Zoning By-law:

The Village of Waterdown has its own Zoning By-law which permits urban land uses.

4. Physical Characteristics:

a) Elevation:

The Village area has elevations between 800' above sea level (a.s.l.) and 675' a.s.l. The highest area is close to Parkside Drive (Suburban Road No. 7) and the lowest area is within the Grindstone Creek Valley at the southerly limits of the Village Area.

b) Watercourses:

Two tributary branches of Grindstone Creek join the same within the Village area. One branch drains in a westerly direction south of Highway No. 5 and the other drains predominantly in a southerly direction and parallel to Hamilton Street.

c) Drainage Area:

The Village area is within the Grindstone Creek watershed.

d) Wooded Areas:

There are a number of wooded areas located along the slope of the Creek Valley.

e) Soil:

The soil of the Village area belongs to the gray brown podzolic and gleysol groups. Sandy loam and sand deposited by glacial drift and alluvial soils of recent time are the respective soil types. The overburden varries throughout the area from a depth of between 25-30 feet to very shallow overburden and rock outcrop of the Niagara Escarpment.

5. Size of Existing Development:

The Village, except for some vacant land, zoned for residential purposes has development on 400 acres.

6. Availability and Quality of Water:

The Village is now serviced with a sufficient water supply from the Town of Burlington.

7. Percolation Quality of Soil:

The sandy loam is well drained and has good drainage capabilities.

8. Accessibility:

Good accessibility is provided by Highway No. 5 which linkage to Highway 403 via Highway No. 6, Suburban Roads Nos. 8 and 54 and former County Road No. 9 provides access from and to East Flamborough and to the Town of Burlington.

9. Existing Community Services:

The Village was incorporated in January 1879. The continuous development of the Village established community services with urban characteristics such as Shopping Centre, Hotel, Restaurants, Bank, Service Stations, Funeral Home, Fire Station etc., and a Community Hall, Churches, Cemeteries, Schools and Community Parks.

10. Population:

The present population of the Village is approximately 2450 persons. Any future population will depend on available Sanitary Sewer Service capacity provided for this area. At the present time the existing Sanitary Treatment Plant could provide services for 3000 persons.

11. Conclusion:

Waterdown developed as a seperate municipality. Within the area are complete municipal services available which stimulated development of urban characteristics. Additional development in and around Waterdown would only be possible if the existing Sanitary Sewer capacity and water supply would be increased.

GREENSVILLE - TOWNSHIP OF FLAMBOROUGH

1. Location:

The Settlement Area is located north of the C.N.R. line predominantly along Highway No. 8 in Lots 3 - 11, Concessions 1 and 2, former Township of West Flamborough.

2. Official Plan:

The Official Plan of the Hamilton-Wentworth Planning Area (West Flamborough Section) designates Greensville as Village Residential which does not appear to cover the area of West Flamborough Centre.

3. Zoning By-law:

The Settlement Area has Residential, Commercial, Industrial, Open Space and Public Zones which are shown on Zoning Map No. 5 of Schedule "A" By-law No. 2287, of the former Township of West Flamborough.

4. Physical Characteristics:

a) Elevation:

The subject area is at the brow of the Niagara Escarpment within the area of some hummocky topography having irregular elevations which are between 835' a.s.l. and 625' a.s.l. The general southerly slope is interupted by the Spencer Creek Valley which is located north of Highway No. 8 in a west - east direction.

b) Watercourse:

There are a number of minor watercourses within the Settlement Area which drain into the major watercourse, the Spencer Creek.

c) Drainage Area:

The area is tributary to the Spencer Creek watershed.

d) Wooded Area:

The area due to its topography has a number of isolated woodlots which are mostly in the area of steep slopes of the terrain or are within the abutting ravines of some watercourses.

e) Soil:

The soil of the Settlement Area is associated with water deposition during glaciation being outwash, kame and other lacustrine depositions. All soils belong to the grey brown podzolic group with parent material of lacustrine sandy loam over gravel or silt loam over clay deposits. This is the area where depositions of a glacial spillway borders on the predominant till depositions of the Dundas Valley.

Soil depth varies greatly from some shallow areas along the Escarpment edge to 75' at the easterly and northerly section to more than 100' at the westerly section of the Settlement Area.

5. Size of Existing "Urban" Development:

Development is on approximately 1046 acres of land.

6. Availability and Quantity of Water:

The subject area has generally a deep overburden of soils which hold water available for domestic consumption. However, some isolated areas along the brow of the Escarpment have experienced water shortage and some contamination of the existing ground water. Some wells draw water from the permeable bedrock formation which requires purification.

7. Percolation Quality of Soil:

The parent material of the soil has generally good drainage with good percolation qualities.

8. Accessibility:

Highway No. 8 and the existing road connecting with Highway No. 5 provide for good accessibility.

9. Existing Community Services:

The settlement has a variety of commercial outlets which serve the demands of the existing population. Two churches and cemeteries provide for spiritual needs. Some small industrial enterprises are also located within the settlement. Two public schools, a municipal hall and a fire station are additional services in the settlement area. The settlement has some well developed Conservation and Park facilities and on its north-westerly boundary a flood control dam.

10. Population:

The Settlement has a present population of approximately 2200 persons.

The area of the settlement has gravity flow toward Hamilton Bay and may be serviced by sanitary sewers into a sewerage treatment plant on Cootes Paradise if and when required at a later date.

The development of the Settlement will require a communal water supply for proposed as well as for the existing development. Since no sanitary sewer connection appears economically feasible at the present time additional development should be based on septic tank systems for individual sites. A density of two (2) dwelling units per acre (2 U.P.N.A.) be the guideline for new development on this basis.

It is furthermore anticipated that this Settlement due to its drainage capability and closeness to the urban area will establish itself as a suburban part of the Hamilton urban area and will have a population exceeding the population of any other settlement in the rural area.

15. CONCLUSION:

Greensville - West Flamborough developed along Highway No. 8 as an access point to the hinterland. Early settlement, mills and service stores provided services for agricultural and population needs without the difficult descent into the lower Dundas Area.

It is possible that the Settlement Area may be serviced by a Sanitary Sewer System and in the future may become part of the urban area.

Development, based on two (2) dwelling units per acre (2 U.P.A.), should be carefully planned so that if and when sanitary sewer services are available surplus land could be used for further development.

Development in this area should be based on septic tank system and a municipal water supply and be in accordance with acceptable guidelines and policies which would recognize physical possibilities, economic capabilities, and social implications of the Settlement as well as of the Municipality.

CARLISLE - TOWNSHIP OF FLAMBOROUGH

1. Location:

The existing development is predominantly located along the traditional roads of the grid system and is located in part of Lots 7, 6 and 5, Concession 8, as well as in the southerly half of Lots 8 and 9, Concession 9, former Township of East Flamborough.

The Village is in the centre of the former Township in a scenic area which may have stimulated the existing residential development.

2. Official Plan:

The Official Plan recognized Carlisle as a settlement area. Significant additional residential development occurred in the last years, in accordance with the requirements of the Official Plan and under Section 33 of the Planning Act.

3. Zoning By-law:

This area of the former Township is not covered by a Zoning By-law which regulates specific land uses.

4. Physical Characteristics:

a) Elevation:

The area has two points of higher elevation, one east of Centre Road and south-west of Progreston Road of approximately 875' above sea level (a.s.l.) and the other north-east of the municipal park on Centre Road of approximately 900' a.s.l. The lowest elevation of about 775' a.s.l. is located close to the mill site on the Bronte Creek Valley.

b) Watercourses:

There is one major watercourse, the Bronte Creek which originates approximately 5 miles north of Carlisle.

c) Drainage Area:

The area is tributary to the watershed of Bronte Creek.

d) Wooded Area:

The area has large woodlots which are located in the hummocky-hilly area and within the flood plain of Bronte Creek.

e) Soil:

Soil in certain areas belongs to the humic gleicol group, the greatest part belongs to the gray-brown podzolic group. The parent material is of medium and find sand. An area south of Carlisle Road and north of the Creek has organic muck, while close to the mill site, at the easterly boundary of the Village Area has exposed shale

Bronte Creek, although it divides the community physically is the major attraction, stimulating development.

Development of the Village should be based on a municipal water supply and septic tank tile systems.

It is feasible that additional development of the Village in the future would require the operation of a sewage treatment plant.

New development of the village should recognize the physical possibilities, economic capabilities and social implications of the Village and the municipality.

FREELTON - TOWNSHIP OF FLAMBOROUGH

1. Location:

The Village is located in the Township of Flamborough north of the intersection of Highway No. 6 and Highway No. 97 in Lots 5 - 7, Concession IX, four residential lots on the south side of the 9th Concession Road and a rural residential subdivision of 40 lots east of Highway No. 6 in Lot No. 13, Concession X in East Flamborough are within the Village area but are separated by the road alignment of the diversion of Highway No. 6.

2. Official Plan:

The West Flamborough Section of the Hamilton-Wentworth Planning Area Official Plan recognized Freelton as a "Village Residential" land use designation.

The East Flamborough-Waterdown Section of the Hamilton-Wentworth Planning Area Official Plan designates certain lands as"Settlement Area".

3. Zoning By-law:

The former Township of West Flamborough has enacted a Zoning By-law which implements the Official Plan in this location.

The former Township of East Flamborough has no Zoning By-law which regulates specific land uses in this area.

4. Physical Characteristics:

a) elevation:

Freelton is located on an elongated-oval hill called a drumlin and has elevations between 958' and 915' a.s.l.

b) watercourses:

There are no watercourses within the Village Area.

c) drainage areas:

Surface drainage of the Village Area is tributary easterly to Bronte Creek.

d) wooded areas:

There is no significant tree stand within the village area.

e) soil:

The soil north of Highway No. 97 belongs to the gray brown podzolic group and has parent material of gravelly, sandy loam till.

South of Highway No. 97 is an area belonging also to the gray brown podzolic group having parent material of loam till.

The area north of Highway No. 97 is well drained and the area south of Highway No. 97 has imperfect soil drainage.

5. Size of Existing Suburban Development:

Development is on approximately 120 acres of land.

6. Availability and Quality of Water:

The subject area is in the Wentworth Till area which consists of sandy, gravelly coarse material which has sufficient fresh water available in quantities adequate for domestic use.

7. Percolation Quality of Soil:

The existing soil types have good percolation capabilities. Some areas with an overburden of loam till would require additional investigations with respect to the installation of septic tank systems.

8. Accessibility:

Freelton is being served by Highway No. 6 and Highway No. 97 as well as by Brock Road, a Township Traffic artery.

The exterior roads provide for good access to the existing properties within the village area.

Accessibility, therefore, is good.

9. Existing Community Services:

Various commercial and industrial businesses are serving the community. Churches of a number of denominations, cemeteries, parks and a school contribute their services to the community as well as the surrounding rural area.

10. Population:

The Village has a present population of approximately 380 persons.

Any future development of the Settlement will require a municipal water supply.

Since no sanitary sewer connection appears economically possible and no watercourse can be considered as a receiving stream for a discharge of effluent, development is to be based on septic tank systems for each individual site.

A density of two (2) dwelling units per net acre (2 U.P.A.) is to be the guideline for any projected population which should not yield more than 1500 persons, if soil conditions are favourable and a sufficient water supply is available.

11. Conclusion

The village of Freelton is well developed and has existing communal service which serve the Settlement and the rural areas as well. Surface drainage would pose no problems to the growth of the Settlement. If a sufficient water supply is available and the percolation quality of the soil is adequate additional development may be considered.

New development is to be based on a policy which would consider the physical possibilities, economic capabilities and social implications this development may have on the Settlement as well as on the municipality involved.

LYNDEN - TOWNSHIP OF FLAMBOROUGH

1. Location:

The Village is located on Highway No. 99, south of a Canadian National Railway line along Suburban Road No. 3, in Lots 12 and 13, Concession 1, in the Townships of Ancaster and Flamborough.

2. Official Plan:

The Official Plan of the Hamilton-Wentworth Planning Area Board (Beverly Section) designates Lynden as Village Residential and the (Ancaster Section) designates it as Hamlet Area. The surrounding areas are designated agricultural.

3. Zoning By-law:

The former Township of Beverly Restricted Area By-law does not indicate zones. The Township of Ancaster has a zoning by-law which indicates an "Agricultural" zone for the area of Lynden.

4. Physical Characteristics:

a) Elevation:

The subject area is within a gently rolling plain having elevations between 725' a.s.l. and 750' a.s.l. with a general south-westerly slope.

b) Watercourses:

A watercourse drains 1,000' easterly in a southerly direction and is tributary to Fairchild Creek and the Grand River Watershed.

c) Drainage Area:

Lynden is within the Fairchild Creek watershed and drains toward a tributary watercourse in a south and south-easterly direction.

d) Wcoded Area:

Some sparse tree cover is evident in and abutting the settlement but no wood-lot of any importance is within the area of Lynden.

e) Soil:

The soil of the subject area belongs to the gray brown podzolic group and has parent material of fine to medium sand which is part of the deposition of glacial spillway in this area. The depth of soil over bedrock is approximately 140' throughout the area.

5. Site of Existing "Urban" Development:

Development is on approximately 110 acres of land.

6. Availability and Quality of Water:

The area is within a depositional glacial feature associated with lacustrine soils of a spillway. Water in the area is sparse and of satisfactory quality; however, it is known that large quantities of water are trucked in to serve the settlement.

7. Percolation Quality of Soil:

The fine and medium sands are imperfect with respect to soil drainage and permit extensive surface run-off.

8. Accessibility:

The Village is located on Highway No. 99 (Governor's Road) and Suburban Road No. 3 (Lynden Side Road), both roads provide for good access to the existing Village area. At the northerly periphery of Lynden is a Canadian National Railway line which may provide for rail services, if and when required.

9. Existing Community Services:

Lynden was a Police Village and has over a period of time stimulated the establishment of a number of Community Services. Churches, cemeteries, schools, medical practitioners, bank, retail stores, etc., are in existence and there are three industrial enterprises which provide some employment opportunity.

10. Population:

The area of the settlement has a present population of approximately 620 persons. Future development should be based on lots not exceeding two dwelling units per acre (2 U.P.A.) requiring a communal water supply and individual septic tank tile systems, which could yield approximately 1500 persons if soil conditions are favourable and a sufficient water supply is available.

15. Conclusion:

The subject area is an established settlement which has most of the essential community services within its boundary. Most of the services offer their function to the agricultural hinterland for which the Village appears to be the central point.

The physical characteristics of the land abutting the village provide for good to excellent agricultural land. Expansion of Lynden easterly is limited due to the existing watercourse.

It is furthermore to be noted that considerable difficulties exist with respect to surface drainage in the easterly section of the Village. This prevents effective percolation resulting in the saturation of soil from septic tank tile beds, and contaminates some domestic water supply. Soil and depth of soil do not pose any problems for the expansion of development.

Development should be by a detailed plan and shall proceed in accordance with requirements and policies established by the municipalities concerned.

MILLGROVE - TOWNSHIP OF FLAMBOROUGH

1. Location:

The Village is located east and west of Highway No. 6 and is within Lot 13, Concession 5 and 6, in the former Township of East Flamborough and in Lots 18 - 20, Concession 4 and 5, in the former Township of West Flamborough.

The Village is situated on a highway intersection of local importance which contributed to its expansion.

2. Official Plan:

The East Flamborough-Waterdown Section of the Hamilton-Wentworth Planning Area Official Plan designates the area as agricultural.

The West Flamborough Section of the Hamilton-Wentworth Planning Area Official Plan designates the area as Village Residential.

3. Zoning By-law:

The former Township of East Flamborough has no Zoning By-law which regulates specific land uses in this area.

The former Township of West Flamborough has enacted a number of zoning categories which provide for appropriate Zoning By-law requirements and a basis for development.

4. Physical Characteristics:

a) Elevation:

The area is located on a slightly easterly slope having elevations between 825' and 875' a.s.l.

b) Watercourses:

Two watercourses traverse the Village area, one is Grindstone Creek which draws its water from the marshy area north-westerly of Millgrove and the other is a branch of Grindstone Creek, originating in a marshy area just north of Flamborough Centre.

c) Drainage Areas:

The entire area is tributary to the watershed of Grindstone Creek.

d) Wooded Areas:

The area has a number of wood lots, which are located in areas unsuitable for agricultural purposes by reasons of topography or wetness of the soil.

e) Soil:

The soil north of Millgrove Road and on both sides of Highway No. 6 belongs to the gray-brown podzolic group and has parent material of sandy loam. South of Millgrove Road and west of Highway No. 6 are soils belonging to the Humid Gleysol group having parent material of loam.

North of Millgrove Road and west of the Village is an area of muck with organic material. The sandy loam area is well drained, the loam area is poorly drained and the organic muck area has swampy characteristics.

5. Size of Existing "Urban" Development:

Development is on approximately 210 acres of land.

6. Availability and Quality of Water:

The subject area is within the area of a glacial spillway. The lodged deposition of the spillway became the dominant soil and overburden above the bedrock formation. Course gravel depositions above permeable bedrock and the upper strata of the underlying limestone formation produce generally potable mater in sufficient quantity and quality.

7. Percolation Quality of Soil:

The parent material of the soil has poor drainage quality in the areas of muck and has good drainage in the sandy loam areas.

8. Accessibility:

Highway No. 6, Millgrove Road (Suburban Road No. 24), Suburban Road No. 43 in East Flamborough and Sydenham Road serve the Village. All roads provide good accessibility for the existing development.

9. Existing Community Services:

The Village and the surrounding agricultural area are served by a variety of commercial uses, a church, a cemetery, a community hall, a library, a school and a municipal park.

10. Population:

The Village has a present population of approximately 550 persons. A municipal water supply is to be required for any further development and sanitary services should be based on septic tank systems for each individual site. The density should not exceed 2 dwelling units per acre (2 U.P.A.) and the possible population should not exceed 1500 persons provided that soil conditions are favourable and a sufficient water supply is available.

11. Conclusion:

The Village is well developed and has a number of communal services, Surface drainage would not create difficulties in future expansion but careful consideration should be given to the protection and preservation of Grindstone Creek. Future development should be in accordance with a policy which should consider the physical characteristics, economic capabilities and social implication of the Village and the municipality.

MOUNT HOPE - TOWNSHIP OF GLANBROOK

1. Location:

The Village is located at Highway No. 6 and Suburban Road No. 37, also known as Airport Road, in part of Lots 2 - 6, Concession III, IV, and V.

Mount Hope has developed as the principal settlement of the former Township of Glanford and is located on a ridge which is the watershed divide between Lake Ontario and Lake Erie.

Mount Hope is approximately 2.5 miles south from the Hamilton City boundary.

2. Official Plan:

The Glanford Section of the Hamilton-Wentworth Planning Area Official Plan designated the Mount Hope area as Village Residential, development has taken place in accordance with the policies of the Plan.

3. Zoning By-law:

The existing Zoning By-law created a variety of zoning categories implementing the Official Plan.

4. Physical Characteristics:

a) Elevation:

Mount Hope is located on a Till Moraine (Erie Morraine) which appears as a ridge with elevations between 770' a.s.l. and 735' a.s.l.

b) Watercourses:

A branch of Twenty Mile Creek traverses Highway No. 6 in an easterly direction close to English Church Road. South of Mount Hope is the main branch of Welland River to which a number of tributary watercourses discharge from the Mount Hope area.

c) Drainage Areas:

The Mount Hope area is tributary to the above-noted watercourses which are the Twenty Mile Creek watershed to the north and the Welland River watershed to the south. Surface drainage can discharge to both respectively.

d) Wooded Areas:

There are no woodlots within the Mount Hope area.

e) Soil:

Soils from the Airport to the centre of the Village belong to the gray brown podzolic group with parent material of silty clay loam and silty loam. The general area of Airport Road, west of Highway No. 6 and north east of the Airport has soil belonging to the humid gleysol group with the same parent material as mentioned

before. The area south of Airport Road and around the southerly diversion of Highway No. 6 has soil belonging to the gray brown podzolic group with silty clay loam and silty loam parent material.

The soils have imperfect and poor drainage.

5. Size of Existing "Urban" Development:

Development excluding the Golf Courses and the Airport is on approximately 238 acres.

6. Availability and Quality of Water:

The subject area is within the Haldimand Clay Plain, an area which consists of fine lacustrine silty clay and silty loam.

Water is available in various depths between approximately 35-75', which at some locations has to be purified but is in quantities adequate for domestic use.

7. Percclation Quality of Soil:

The existing soil types have imperfect to poor percolation qualities. Most of the area has a silty-clay-till soil which does not permit good percolation. Surface drainage is almost completely discharged by run-off into the watercourses with very little penetration into the zone of saturation.

8. Accessibility:

Mount Hope is being served by Highway No. 6 and the Concession Roads leading into the Settlement Area.

All roads provide for good access to the Village area.

9. Existing Community Services:

Various commercial and industrial businesses are serving the community including also the Hamilton Municipal Airport which serves the Region. Churches, cemeteries, parks, schools, a golf course and the Township of Glanbrook administration offices provide services for the Village and the surrounding agricultural area.

10. Population:

The Village area has a present population of approximately 850 persons

The topography of the land indicates that no watercourse can be considered a receiving stream for a discharge of effluent. Since soil conditions are not favourable with respect to septic tank systems and saturation of the soil with respect to effluent absorption is already evident in a number of places, additional development has to be based on some acceptable means of discharge into a municipal sewerage disposal system and/or alternatively on a limited basis on septic tank systems for each individual property, and a municipal water supply.

In the event full urban services will be made available for the Village a substudy would be required to determine the potentials of urban development which should include all aspects of development in connection with the airport expansion programme.

Based on development by individual septic tanks the Village should be served by a municipal water supply. Density on this basis should not exceed 2 dwelling units per acre (2 U.P.A.) for a possible development area of approximately two acres and not including the area of the airport.

11. Conclusion:

Mount Hope has a large number of communal services which exphasize the importance of the Village within the commercial, potitical and social life of the Township of Glanbrook.

In the event that an expansion of the Hamilton Municipal Airport occurs, development will accelerate on an urban basis.

Before any proposed development occurs a carefully considered development plan should be worked out which would provide guidelines and policies under which any development must proceed.

BINBROOK - TOWNSHIP OF GLANBROOK

1. Location:

The Village is located at the intersection of Highway No. 56 and County Road No. 22 in Lot 1, Block 4, Concession 3; Lot 5, Block 3, Concession 3; Lot 1, Block 4, Concession 4, and Lot 5, Block 3, Concession 4, in the former Township of Binbrook.

2. Official Plan:

The Official Plan of the Hamilton-Wentworth Planning Area (Binbrook Section) designates Binbrook as a Village Residential area and the abutting area is designated Agricultural.

3. Zoning By-law:

The Township of Binbrook Zoning By-law indicates Residential, Commercial, Industrial, Institutional, Public and Open Space Zones within the settlement and Agricultural Zoning of the abutting lands.

4. Physical Characteristics:

a) Elevation:

The Village area is part of the Mount Hope Moraine, a glacial deposition which in the area of the Village has elevations between 680' a.s.l. and 710' a.s.l. with a generally southerly slope.

b) Watercourses:

The southerly slope of the Mount Hope Moraine is the beginning of a few small watercourses which are located south of County Road No. 22.

c) Drainage Areas:

The settlement area is within the Welland River watershed.

d) Wooded Areas:

There is a wooded area in the easterly section of Lot 5, Block 3, Concession 3.

e) Soil:

The soil of the Village area belongs to the gray brown podzolic group and has parent material of silt loam, deposited as glacial drift over the morainic depositions during periods of the last glaciation. The soil has an average depth between 70' to 80' over the underlying bedrock formation.

5. Size of Existing "Urban" Development:

Development is on approximately 87 acres of land.

6. Availability and Quality of Water:

The subject area is generally within the Haldimand Clay Plain which is a till deposition of heavy soils with poor percolation capabilities. North of County Road No. 22 is the "Mount Hope moraine" with coarse gravelly and partly sandy underlying depositions but with the clay soil in the upper soil sections.

Water is available in limited quantities from gravelly deposits just above the underlying bedrock formation or from some permeable bedrock strata but the latter may have a sulphoric content and needs purification.

7. Percolation Quality of Soil:

The silt loam soil is imperfect to poor with respect to soil drainage.

8. Accessibility:

The settlement has good accessibility which is provided by Highway No. 56 and County Road No. 22.

9. Existing Community Services:

Binbrook developed as the centre of the former municipality with a number of services which provide for most of the needs of the population including a school, church, cemetery, municipal hall, fairground and municipal park, industries, retail and service stores.

10. Population:

The present population of the Village is approximately 370 persons.

Since physical characteristics of this area impose certain restrains on future development a future population will depend on perhaps a revised sanitary service policy or on the existing physical conditions limiting the water supply and the septic tank system sanitary service.

11. Conclusion:

Binbrook is an important settlement within the political, social and economic life of the municipality. Much pressure for development is evident due to the comparative closeness to the larger urban area of Hamilton and its easy access route from Binbrook.

Development of the settlement may significantly increase and may influence expansion in a detrimental way by overtaxing and polluting the existing water supply, as well as by creating sanitary problems within the steelement.

A substudy regarding future development should provide the basis for a new development policy for this Village.

Bibliography

1. Chapman, L.J. and Putman D.F.
The Physiography of Southern Ontario
University of Toronto Press, 1951

2. Hurst, D.L.
The Social and Pleistocene Geology of the Dundas Valley
Mills Memorial Library, McMaster University

3. E.W. Present, R.E. Wicklund and B.C. Matthews
Canada Department of Agriculture, Ottawa
Ontario Department of Agriculture, Toronto, 1965

4. P.F. Karrow
Pleistocene Geology of the Hamilton-Galt Area
Geological Report No. 16
Ontario Department of Mines, 1963

5. W.R. Cowan
Pleistocene Geology of the Brantford Area
Industrial Mineral Report No. 37
Ontario Department of Mines and Northern Affairs, 1972

6. M.A. Vos
Stone Resources of the Niagara Escarpment
Ontario Department of Mines, 1969
J.Z. Fraser

7. Mineral Resource Study
Ontario Ministry of Natural Resources 1974

8. Regional Studies Programme
Physical Features
Hamilton-Wentworth Planning Area Board, 1963

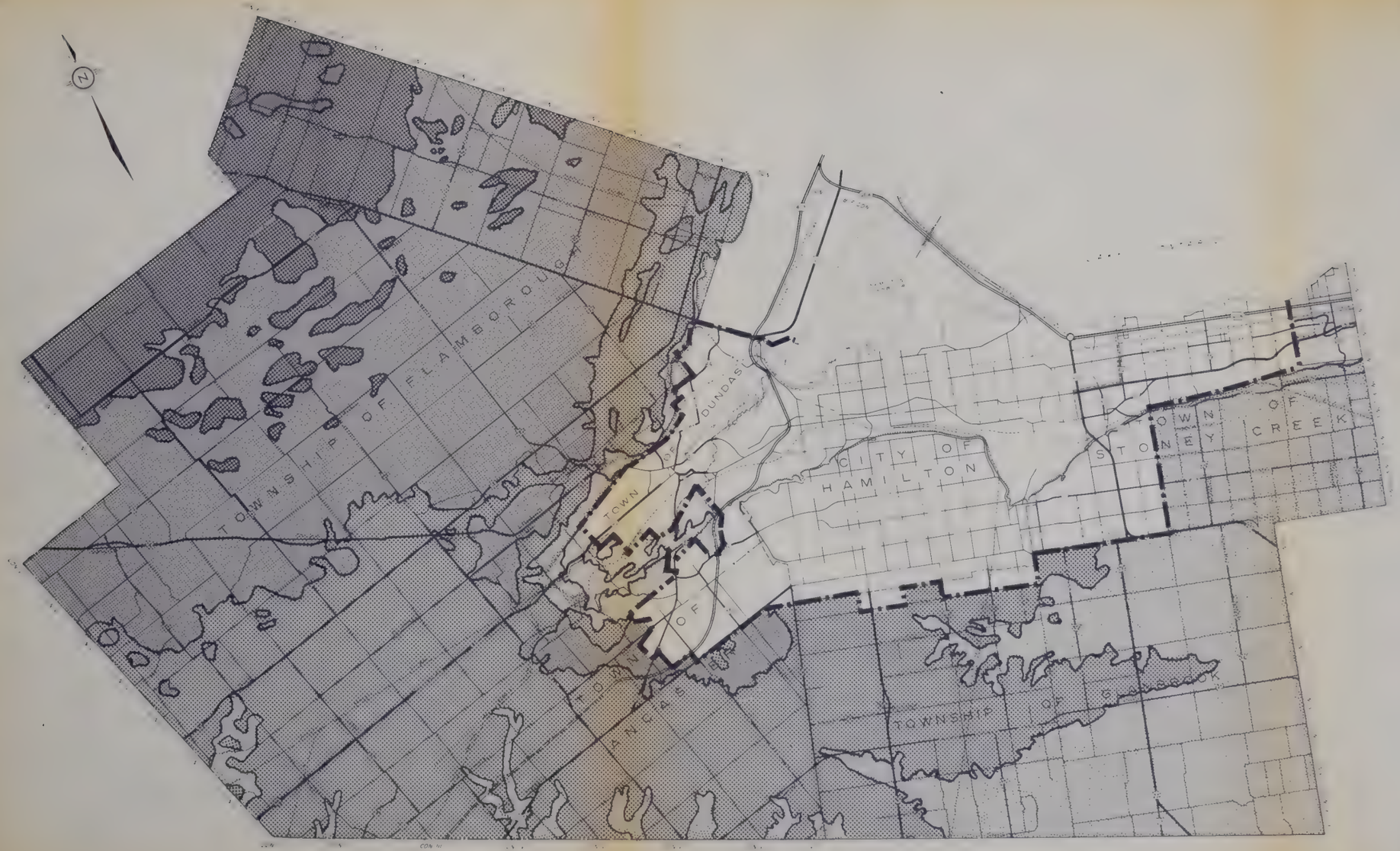
9. The Climate of Ontario
Ontario Department of Agriculture and Food, 1966

10. R.G.F. Hill
Population Growth and Land Use Planning
Ontario Ministry of Agriculture and Food, 1974

11. Hamilton-Wentworth Area
Water Supply and Pollution Control Study
Ontario Ministry of the Environment, 1972

12. Agricultural Statistics for Ontario,
Ontario Ministry of Agriculture and Food, 1972

13. Statistics Canada,
Agriculture Ontario, 1971



THE REGIONAL MUNICIPALITY OF HAMILTON - WENTWORTH

Regional Planning & Development Department

LEGEND

- 1000 Feet
- 900 Feet
- 800 Feet
- 700 Feet
- 600 Feet
- 500 Feet
- 400 Feet
- 300 Feet
- 250 Feet
- Under 250 Feet
- Boundary Between Urban & Rural Areas
- Municipal Boundary

Scale 1 0 1 2 3 4 5 KM (1" = 2 Miles)

Date Nov. 1, 1974

ELEVATIONS

Map No 2

THE REGIONAL MUNICIPALITY OF HAMILTON - WENTWORTH

Regional Planning & Development Department

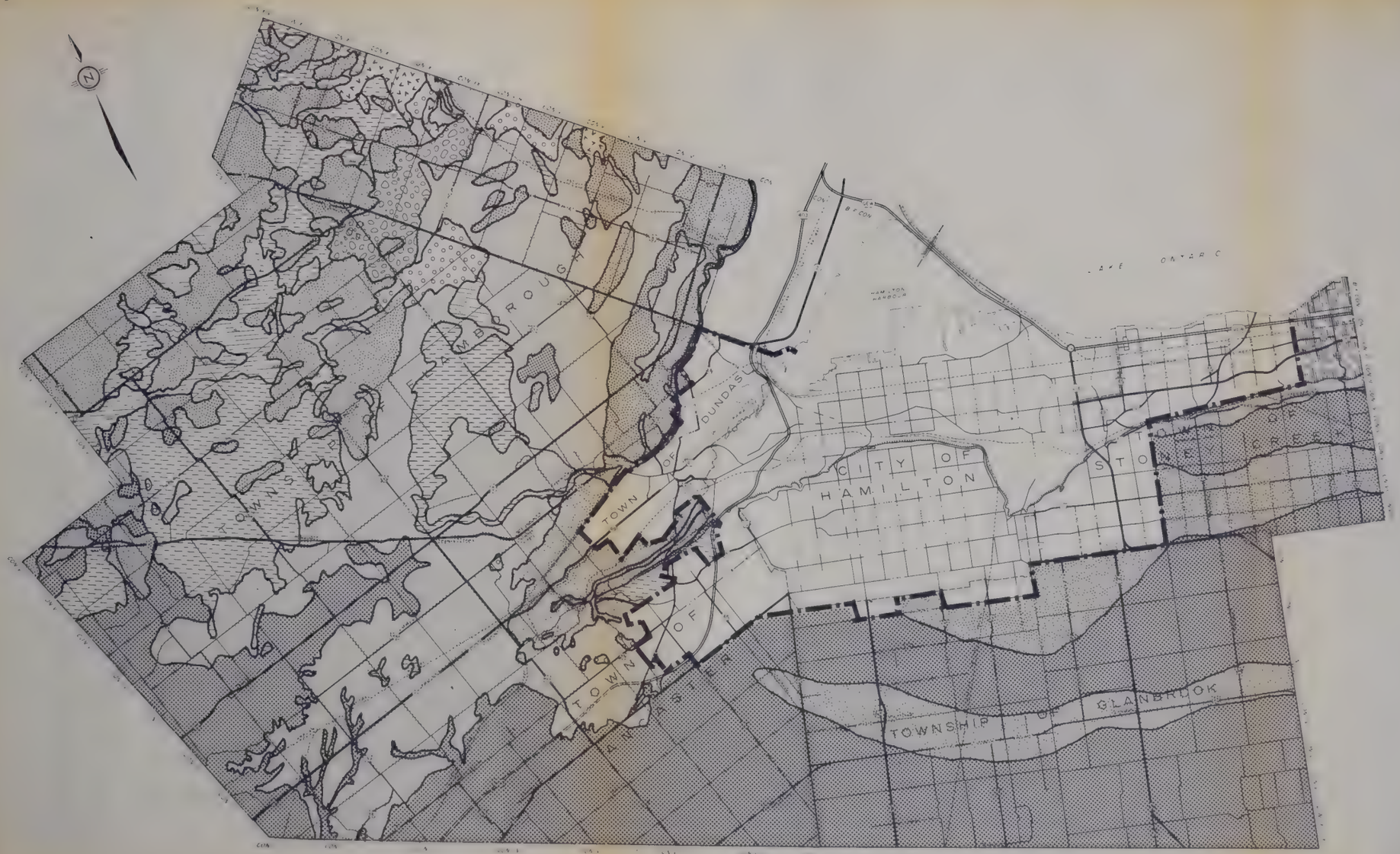
LEGEND

- Escarpment
- Till Moraine
- Spillway
- Kame Moraine
- Drumlins
- Beveled Till Plain
- Lime Stone Plain
- Shale Plain
- Sand Plain
- Clay Plain
- Marsh
- Beaches & Shorecliff
- Esker
- Boundary Between Urban & Rural Areas
- Municipal Boundary

Scale 1 0 1 2 3 4 5 KM. (1" = 2 Miles)

Date Nov. 1, 1974

PHYSIOGRAPHY Map No 3



THE REGIONAL MUNICIPALITY OF HAMILTON - WENTWORTH

Regional Planning & Development Department

LEGEND

- Sand, Kame & Outwash (Glaciofluvial - Pleistocene)
- Clay, Silt & Some Sand (Glaciolacustrine - Pleistocene)
- Clay, Silt, Till, Sand (Till - Glacial Depositions - Pleistocene)
- Bouldary Till & Bedrock Ridges (Outcrop Complex - Pleistocene & Silurian)
- Outwash Gravel (Glaciofluvial - Pleistocene)
- Kame, Gravel (Glaciofluvial - Pleistocene)
- Shale, Dolomite & Gravel, Sand, Silt, Clay (Silurian - Pleistocene)
- Peat & Muck (Bog Deposits, Peat Muck - Modern Alluvium - Cenozoic)
- Sandy Loam (Modern Alluvium - Cenozoic)
- Water
- Boundary Between Urban & Rural Areas
- Municipal Boundary

Scale 1 0 1 2 3 4 5 KM. (1" = 2 Miles)

Date Nov. 1, 1974

SURFICIAL GEOLOGY

Map No 4

THE REGIONAL MUNICIPALITY OF HAMILTON - WENTWORTH

Regional Planning & Development Department

LEGEND

- Soil Classification Nº 1
- Soil Classification Nº 2
- Soil Classification Nº 3
- Soil Classification Nº 4
- Soil Classification Nº 5
- Soil Classification Nº 6
- Soil Classification Nº 7
- Soil Classification Nº 0
- Boundary Between Urban & Rural Areas
- Municipal Boundary

Scale 1 0 1 2 3 4 5 KM (1" = 2 Miles)

Date Nov. 1, 1974

CANADA LAND INVENTORY SOILS

Map No 5

THE REGIONAL MUNICIPALITY OF HAMILTON - WENTWORTH

Regional Planning & Development Department

LEGEND

- Limit Of Drainage
- Direction Of Major Drainage
- Boundary Between Urban & Rural Areas
- Municipal Boundary

Scale 1 0 1 2 3 4 5 KM (1" = 2 Miles)

Date Nov. 1, 1974

WATERSHEDS & WATERCOURSES Map No 6

THE REGIONAL MUNICIPALITY OF HAMILTON - WENTWORTH

Regional Planning & Development Department

LEGEND

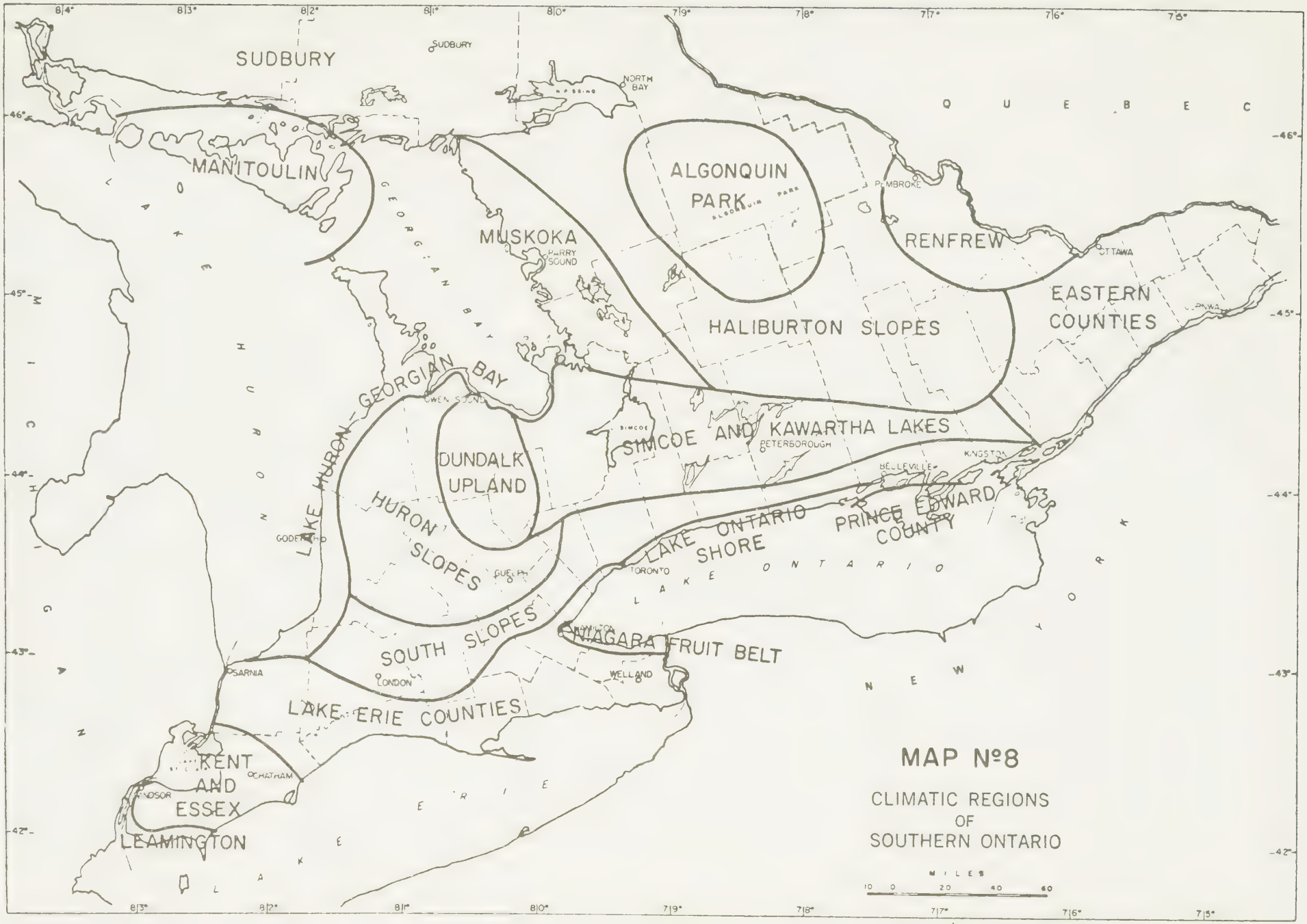
- Woodlot
- Boundary Between Urban & Rural Areas
- Municipal Boundary

Scale 1 0 1 2 3 4 5 KM. (1" = 2 Miles)

Date Nov. 1, 1974

WOODLOTS

Map No 7


SUDBURY
MANITOULIN
MUSKOKA
ALGONQUIN PARK
RENFREW
EASTERN COUNTIES
HALIBURTON SLOPES
LAKE HURON–GEORGIAN BAY
SIMCOE AND KAWARTHA LAKES
DUNDALK UPLAND
HURON SLOPES
SOUTH SLOPES
LAKE ONTARIO SHORE
PRINCE EDWARD COUNTY
NIAGARA FRUIT BELT
LAKE ERIE COUNTIES
KENT AND ESSEX
LEAMINGTON
LAKE HURON
GEORGIAN BAY
LAKE ONTARIO
LAKE ERIE
NEW YORK
QUEBEC
SUDBURY
NORTH BAY
PEMBROKE
OTTAWA
PARRY SOUND
OWEN SOUND
BARRIE
PETERBOROUGH
KINGSTON
BELLEVILLE
GODERICH
GUELPH
TORONTO
HAMILTON
WELLAND
SARNIA
LONDON
CHATHAM
WINDSOR
MILES
0 20 40 60
MAP Nº8
CLIMATIC REGIONS OF SOUTHERN ONTARIO

THE REGIONAL MUNICIPALITY OF HAMILTON - WENTWORTH

Regional Planning & Development Department

LEGEND

- Urbanized Area
- Suburban Area (Villages)
- Hamlets
- Clusters
- Non - Rural
- Industrial
- Airport
- Open Areas
- Rural Area
- Boundary Between Urban & Rural
- Municipal Boundary

Scale 1 0 1 2 3 4 5 KM. (1" = 2 Miles)

Date Nov. 1, 1974

GENERALIZED EXISTING LAND USES

Map No 9

THE HAMILTON PUBLIC LIBRARY

URBANA